element for red light 101R, for green light 101G, and for blue light 101B (see column 3, lines 45-50). As indicated in column 3, lines 39-40, this filter is not shown in Fig. 1A.

In connection with Fig. 1A, Koike suggests to arrange a metal transparent layer 6R over the red cell, a different metal layer 6G over the green cell, and no metal layer over the blue cell. These metal layers are transparent conductive films (see column 3, line 66). Therefore, these metal layers do not participate in the color filtering. Also, as emphasized by the Examiner, Koike does not suggest connecting the metal layers to the semiconductive substrate.

Thus, Koike clearly differs from claim 1, wherein each photodiode of an array of photodiodes is coated with an interference filter, wherein each interference filter includes an insulate layer coated with a conductive layer and wherein each conductive layer is connected to the substrate. So, the conductive layers have the double function of participating in the color filtering and of increasing the capacitance of each photodiode.

It is noted that the Examiner has not substantiated the obviousness rejection in the Office Action.. Applicant refers in particular to the statement regarding it being obvious to have the substrate at ground and the electrodes either connected to the substrate or via a fixed potential. There is simply no suggestion in any of the references that this be done. The appropriate language in claim 1 that refers to this clearly states that the conductive layer is electrically connected to the semiconductive region of a first conductivity type. From an illustrative standpoint this would be the portion of layer 5 illustrated in Fig. 1A of the present application that connects to the portion 8. If one refers to Fig. 2 of the Koike patent there is simply no showing of this structure as recited in Applicants claims, particularly claim 1.

The Examiner rejects claim 1 under 35 U.S.C. §102 over Nagasaki. In Nagaski, over a portion of each cell, you have a conductive layer 9 connected to the substrate. However, this metal layer is not a part of an interference filter and is not over the active part 8 of the photodiode, as indicated in column 6, lines 28-39. This document does not suggest connecting a conductive layer of an interference filter to the substrate of a photodiode.

In order to further define Applicant's contribution to the art, additional claims have been added to this application, particularly claims 4-27. Some of these claims are dependent claims that depend from original claims 1-3. For example, claims 4-11 are dependent claims that recited additional features of the present invention. Claims 4-11 depend from claim 1 and are allowable for at least the same reasons.

Claim 12 defines a photodiode comprising a semiconductor substrate of first conductivity type, a semiconductive region of second conductivity type and a multilayer interference filter. The filter is defined as including at least one insulating layer of predetermined thickness, and a conductive layer disposed over the insulating layer. Claim 12 also defines that the conductive layer includes a conductive portion that electrically connects the conductive layer to said semiconductor substrate of first conductivity type. Thus, this claim clearly has the feature of the interconnection of the conductive layer by means of a conductive portion to the semiconductive substrate. This feature is not at all shown in the art relied upon by the Examiner.

Claims 13-16 depend from claim 12 and are allowable for at least the same reasons.

Claim 12 defines a last element of the claim as being a means for defining a conductive portion that electrically connects the conductive layer to the substrate. Again, this feature is not found in the prior art. Claim 18 is a dependent claim and specifically relates to the heavily doped region in the substrate to which the conductive layer couples. This feature is not at all found in the art cited by the Examiner.

Applicant has also added claim 19 to the application. This claim claims the structure illustrated in Fig. 3. The connection of diode and transistor is not believed to be shown in the art relied upon by the Examiner.

Claim 20 is a method claim. This relates to the steps illustrated in Figs. 2A-2C of the present application employing a first silicon oxide layer deposited and etched, followed by successive second and third layers. These are illustratively defined in Figs. 2A-2C as layers 4-1, 4-2 and 4-3. Lastly, this method defines the step of forming the conductive layer of these deposited insulating layers. This successive form of deposition and etching is not at all believed to be shown by the art relied upon by the Examiner.

Claims 21 and 22 depend from claim 20 and are allowable for at least the same reasons.

Claim 23 claims, inter alia, the method employed in forming the structure of Fig. 4. This includes defining a substrate, followed by defining transistor and diode regions. There is formed a drain region and a source region with the source region extending to form the cathode region of the diode. Also defined is the formation of an insulating gate between the drain and source of the transistor. Lastly, are defined the interference filter layers, namely the insulating and conductive layers. Again, this method is not believed to all be taught by the prior are relied upon by the Examiner.

Claims 24-26 depend from claim 23 and are allowable for at least the same reasons.

Claim 27 claims the feature of the substrate being a well formed in a base substrate. This also relates to the embodiment, such as described in the present application in which the conductive or polysilicon region is connected to this substrate and not directly to the first conductivity type substrate.

In view of the foregoing amendments and remarks, this application should now be in condition for allowance. A notice to this effect is respectfully requested. If the Examiner believes, after this amendment, that the application is not in condition for allowance, the Examiner is requested to call the Applicant's attorney at the number listed below.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to deposit account No. 23/2825.

Respectfully submitted,

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